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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,755	07/23/2001	Rainer Platz	ICB 0110	2501

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EXAMINER

NGO, HUYEN LE

ART UNIT PAPER NUMBER

2871

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/909,755

Applicant(s)

PLATZ ET AL.

Examiner

Julie-Huyen L. Ngo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

Receipt is acknowledged of paper submitted under 35 U.S.C. 119(a)-(d), which paper has been placed of record in the file.

Information Disclosure Statement

The information disclosure statement filed July 23, 2001 (paper no. 3) has been considered.

Specification

The abstract of the disclosure is objected to because "the latter," in line 3, lacks antecedence. Correction is required. See MPEP § 608.01(b).

The specification is objected to because it fails to have the preferred layout.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.

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- (1) Field of the Invention.
- (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Content of Specification

- (a) Title of the Invention: See 37 CFR 1.72(a) and MPEP § 606. The title of the invention should be placed at the top of the first page of the specification unless the title is provided in an application data sheet. The title of the invention should be brief but technically accurate and descriptive, preferably from two to seven words may not contain more than 500 characters.
- (b) Cross-References to Related Applications: See 37 CFR 1.78 and MPEP § 201.11.
- (c) Statement Regarding Federally Sponsored Research and Development: See MPEP § 310.
- (d) Incorporation-By-Reference Of Material Submitted On a Compact Disc: The specification is required to include an incorporation-by-reference of electronic documents that are to become part of the permanent United States Patent and Trademark Office records in the file of a patent application. See 37 CFR 1.52(e) and MPEP § 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text were permitted as electronic documents on compact discs beginning on September 8, 2000.

Or alternatively, Reference to a "Microfiche Appendix": See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.
- (e) Background of the Invention: See MPEP § 608.01(c). The specification should set forth the Background of the Invention in two parts:

- (1) Field of the Invention: A statement of the field of art to which the invention pertains. This statement may include a paraphrasing of the applicable U.S. patent classification definitions of the subject matter of the claimed invention. This item may also be titled "Technical Field."
 - (2) Description of the Related Art including information disclosed under 37 CFR 1.97 and 37 CFR 1.98: A description of the related art known to the applicant and including, if applicable, references to specific related art and problems involved in the prior art which are solved by the applicant's invention. This item may also be titled "Background Art."
- (f) Brief Summary of the Invention: See MPEP § 608.01(d). A brief summary or general statement of the invention as set forth in 37 CFR 1.73. The summary is separate and distinct from the abstract and is directed toward the invention rather than the disclosure as a whole. The summary may point out the advantages of the invention or how it solves problems previously existent in the prior art (and preferably indicated in the Background of the Invention). In chemical cases it should point out in general terms the utility of the invention. If possible, the nature and gist of the invention or the inventive concept should be set forth. Objects of the invention should be treated briefly and only to the extent that they contribute to an understanding of the invention.
- (g) Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.
- (h) Detailed Description of the Invention: See MPEP § 608.01(g). A description of the preferred embodiment(s) of the invention as required in 37 CFR 1.71. The description should be as short and specific as is necessary to describe the invention adequately and accurately. Where elements or groups of elements, compounds, and processes, which are conventional and generally widely known in the field of the invention described and their exact nature or type is not necessary for an understanding and use of the invention by a person skilled in the art, they should not be described in detail. However, where particularly complicated subject matter is involved or where the elements, compounds, or processes may not be commonly or widely known in the field, the specification should refer to another patent or readily available publication which adequately describes the subject matter.

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- (i) Claim or Claims: See 37 CFR 1.75 and MPEP § 608.01(m). The claim or claims must commence on separate sheet (37 CFR 1.52(b)). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See 37 CFR 1.75 and MPEP § 608.01(i)-(p).
- (j) Abstract of the Disclosure: See MPEP § 608.01(f). A brief narrative of the disclosure as a whole in a single paragraph of 150 words or less commencing on a separate sheet following the claims. In an international application which has entered the national stage (37 CFR 1.491(b)), the applicant need not submit an abstract commencing on a separate sheet if an abstract was published with the international application under PCT Article 21. The abstract that appears on the cover page of the pamphlet published by the International Bureau (IB) of the World Intellectual Property Organization (WIPO) is the abstract that will be used by the USPTO. See MPEP § 1893.03(e).
- (k) Sequence Listing. See 37 CFR 1.821-1.825 and MPEP §§ 2421-2431. The requirement for a sequence listing applies to all sequences disclosed in a given application, whether the sequences are claimed or not. See MPEP § 2421.02.

An appropriate correction is required.

Claim Objections

Claims 1-13 are objected to because of the following informalities:

In lines 4-6 of claim 1, "the light transmitted through said electro-optical cell" shall be __ **a** light transmitted through said electro-optical cell __.

In line 2 of claim 3, "the electrochromic type or the electrolytic type" shall be __ **an** electrochromic type or **an** electrolytic type __.

In lines 1-2 of claim 5, "said predetermined wavelengths" shall be __ said predetermined visible wavelengths __ (see lines 4-5 of claim 1).

In lines 2 and 3 of claims 8 and 9, the word "comprised" is improper and unnecessary in the context of the claims.

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Claims not specifically mentioned above are rejected as bearing the defect(s) of the claim(s) from which they depend.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 6-9 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 6, it is unclear what Applicant referring to as "an active photodiode part". Shall it be __ an active photodiode __?

In claim 8, "said silicon photodiode part," lines 1-2, and "the reflected light," line 4, are unclear and lack antecedence. It would be proper to refer as __ said active photodiode __ and said predetermined visible wavelengths__.

In line 2 of claim 13, "the latter" lacks antecedence.

Claims not specifically mentioned above are rejected as bearing the defect(s) of the claim(s) from which they depend.

Appropriate correction is required.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of Ziegler et al. (U.S. Patent No. US6459035B2), and further in view of Ebihara et al. (US5990995A).

Ziegler et al. teach (claims 1-7) forming a photovoltaic cell comprising all features recited in claims 1-13 of a present application except for an electro-optical cell arranged in front of said photovoltaic cell and capable of having transparent regions for transmitting incident light to said photovoltaic cell.

Ebihara et al. teach (Fig. 18) arranging an electro-optical cell 1a/2a/3/2b/1b having transparent regions in front of a photovoltaic cell for transmitting incident light to said photovoltaic cell for efficiently distributing and feeding powers from a solar cell.

With respect to claims 2 and 3, it is well known and conventional for an electro-optical cell is of an electrochromic type or a liquid crystal cell for different ways of modulating light passing through an electro-optical cell.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the display assembly disclosed by Ziegler with an electro-optical cell, which is of an electrochromic type or a liquid crystal cell for different ways of modulating light passing through said electro-optical cell, and

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arranged said electro-optical cell having transparent regions in front of the photovoltaic cell and capable of transmitting incident light to said photovoltaic cell for efficiently distributing and feeding powers from the solar cell.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4, 5, 10, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebihara et al. (US5990995A).

With respect to claims 1-2, 4, 5, 10, 11 and 13, Ebihara et al. disclose (Figs. 18 and 25) a display assembly including:

- a solar cell/photovoltaic cell 15,
- an electro-optical cell (1a, 2a, 3, 2b and 1b) arranged in front of said photovoltaic cell 15 and having transparent regions capable of transmitting incident light to said photovoltaic cell,

wherein

- said photovoltaic cell is arranged to reflect predetermined visible wavelengths of the light transmitted through said electro-optical cell, so that said photovoltaic cell forms a colored reflector behind said electro-optical cell;
- said electro-optical cell is a liquid crystal cell (claim 2).

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- said electro-optical cell includes means/reflection layer 4 for providing a colored reflection of the incident light in its non transparent zones (claim 4);
- analogue display members (the optical guide plate 11 and defusing plate 12) placed in front of said electro-optical cell (claim 13).

With respect to claims 5 and 10, Ebihara et al. teaches (Figs. 2A-B) a display assembly including

- a photovoltaic cell 5 (the light absorbing layer 5 is replaced by solar cell, col. 7 lines 58-60),
- an electro-optical cell 1a/2a/3/2b/1b arranged in front of said photovoltaic cell and capable of having transparent regions for transmitting incident light to said photovoltaic cell,

wherein

- the reflection of said predetermined wavelengths is an interferential reflection via a multi-layered reflective filter including a transparent top electrode 2b of said photovoltaic cell (col. 25 lines 9-20) (claim 5);
- said top electrode is covered with a transparent or slightly diffusing lacquer layer (liquid crystal layer 3) according to claim 10.
- said lacquer layer contains dyes or pigments (col. 19 lines 52-60) according to claim 11;

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ebihara et al. (US5990995A) as applied to claim 1, in view of Taga et al. (US4583815).

Taga et al. teach (Fig. 2 col. 21 lines 11-30) forming a display assembly using an electro-optical cell of an electrochromic type for different type of display or sensor.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a display assembly as Ebihara et al. disclosed with an electro-optical cell of the electrochromic type for different type of display or sensor.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebihara et al. (US5990995A) as applied to claim 5, in view of Arya et al. (US5403404A).

Arya et al. teach (Figs. 4-7) forming a photovoltaic cell including:

- an inner reflector, formed by a reflective substrate or a bottom reflective electrode 236, and an active photodiode part formed of semiconductor material having a greater real refractive index than that of the top electrode for reflecting light back to active regions;

- said semiconductor material is hydrogenated amorphous silicon for constructing the p- and n-type layers of amorphous silicon p-i-n photovoltaic devices.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a display assembly as Ebihara et al. disclosed with:

(a) an inner reflector, formed by a reflective substrate or a bottom reflective electrode 236, and an active photodiode part formed of semiconductor material having a greater real refractive index than that of said top electrode for reflecting light back to active regions;

(b) said semiconductor material is hydrogenated amorphous silicon for constructing the p- and n-type layers of amorphous silicon p-i-n photovoltaic devices.

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebihara et al. (US5990995A) as applied to claim 5 above, in view of Arya et al. (US5403404A) as applied to claims 6 and 7 above, and in further view of Ziegler et al. (US6459035B2).

Ziegler et al. teach (col. 5 lines 50-58) forming a display assembly comprising:

- an active silicon photodiode part has a thickness between 100 and 600 nm and a top electrode has a thickness between 60 and 300 nm, the pairing of said thicknesses leading to a determined colour of the reflected light (claim 8).

- said active photodiode part made of silicon has a thickness between 250 and 450 nm and said top electrode has a thickness between 70 and 150 nm (claim 9).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the Ebihara et al. in view Arya et al. display assembly with:

(a) said active silicon photodiode part has a thickness between 100 and 600 nm and said top electrode has a thickness comprised between 60 and 300 nm, the pairing of said thicknesses leading to a determined colour of the reflected light (claim 8);

(b) said active photodiode part made of silicon has a thickness between 250 and 450 nm and said top electrode has a thickness comprised between 70 and 150 nm (claim 9) for producing an interferential reflection in a predetermined reflection spectrum, as taught by Ziegler et al.

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ebihara et al. (US5990995A) as applied to claim 5 above, in view of Arya et al. (US5403404A) as applied to claims 6 and 7 above, and in further view of Kariya et al. (US5456762A).

Kariya et al. teach (col. 25 lines 5-34) forming a solar cell, wherein

- an active silicon photodiode part has a thickness of 180 nm or 250nm, which is between 100nm and 600nm, and a top electrode has a thickness of 70nm, which is between 60nm and 300 nm. Since the materials made active silicon

photodiode part and top electrode have different refractive indexes, the pairing of said thicknesses leading to a determined colour of the reflected light (claim 8).

- said active photodiode part made of silicon has a thickness of 180 nm or 250nm, which is between 250 and 450nm; and said top electrode has a thickness of 70nm, which is between 70 and 150 nm (claim 9).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the Ebihara et al. in view of Arya et al. display assembly with (a) said active silicon photodiode part has a thickness between 100 and 600 nm and said top electrode has a thickness between 60 and 300 nm, the pairing of said thicknesses leading to a determined colour of the reflected light (claim 8); (b) said active photodiode part made of silicon has a thickness between 250 and 450nm and said top electrode has a thickness between 70 and 150 nm (claim 9) for high durability and superior temperature characteristic and enhancing photoelectric conversion efficiency.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Weinberger (US4472627) discloses (Figs. 3 and 4) a liquid crystal cell forming on a solar cell.

Bell et al. (US4126150) disclose a photovoltaic device having increasing absorption efficiency.

Taga et al. (US4583815) disclose heat wave shielding lamination with electrochromic layers and solar cell.

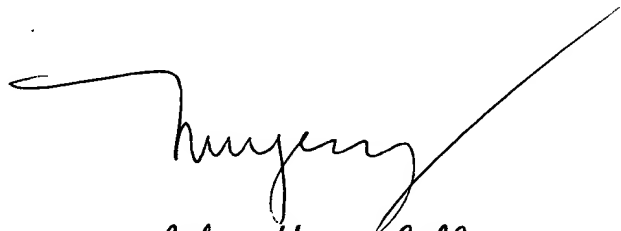
Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Julie-Huyen L. Ngo whose telephone number is (703) 305-3508. The Examiner can normally be reached on T-Friday.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. William L. Sikes can be reached at (703) 308-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-4709 for regular communications and (703) 746-4709 for After Final communications. Please contact the Examiner before faxing any paper to the Office.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

March 21, 2003



Julie-Huyen L. Ngo
Patent Examiner
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